

# Nursing Care for Children with Gastrostomy: Integrative Review

REVIEW

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## Abstract

**Objective:** To analyze national and international scientific production on nursing care for children with gastrostomy.

**Method:** Integrative review conducted in the databases Latin American and Caribbean Health Sciences (LILACS), *Scientific Electronic Library Online* (SCIELO), *Medical Literature Analysis and Retrieval System Online* (MEDLINE) and *Cumulative Index to Nursing and Allied Health Literature* (CINAHL) without temporal delimitation of publications. The following Health Sciences Descriptors (DeCS) and *Medical Subject Headings* (MeSH) were used: gastrostomia/gastrostomy/cuidado da criança/children care/enfermagem/nursing. Twenty references were found in LILACS, four in SciELO, 116 in MEDLINE and 167 in CINAHL. The studies found in the LILACS and SciELO did not meet the inclusion criteria. Three articles were selected from MEDLINE and 02 from CINAHL; thus, 05 articles composed the sample of the study.

**Results:** We observed that gastrostomy brought about satisfaction to caregivers despite post-surgery complications. Improvements brought about by the use of the device and reduction of complications related to feeding difficulties, weight gain, decreased vomiting, abdominal distention and fatigue of the patient throughout the day were mentioned. It was also noted that caregivers in the studies felt fear and insecurity at decision-making on the insertion of gastrostomy, showing that the information for the care of these patients was a common concern among them.

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**Conclusion:** The study allows us to conclude that the care provided by nurses to children with gastrostomy and family contributes to increase knowledge, thus facilitating decision-making during the management of the device. The use of educational technologies are to be highlighted as a strategy for promoting care during hospitalization and preparing parents to take care of the gastrostomy after hospital discharge.

**Keywords**

Gastrostomy; Children Care; Nursing.

## Introduction

Enteral nutritional therapy provides a therapeutic possibility for maintenance or recovery of the nutritional status in patients whose gastrointestinal tract has no impairment for digestion, but have partially or fully committed oral ingestion [1].

Enteral nutritional therapy has as main objective the prevention and treatment of malnutrition, the patient's preparation for surgical and clinical procedure, improvement of immune and healing response, prevention and treatment of infectious and non-infectious complications resulting from treatment and disease, and improvement of the life quality of patients. These aspects reduce the length of stay and also hospital costs [2].

Enteral nutrition is indicated, among other things, in cases of difficult swallowing caused by neurological injury or facial trauma, lumen obstruction or hypercatabolic states such as extensive burns, cystic fibrosis and inflammatory bowel disease [3]. Nasoenteric catheters are indicated for food intake limitations for short periods of time. Thus, cases of enteral nutrition for longer than 30 days require the use of gastrostomy [4].

Gastrostomy is a surgical procedure that creates access to the stomach lumen through the abdominal wall, forming an artificial fistula in the stomach wall to introduce food [5]. This surgery is indicated in cases of inadequate food intake related to chronic diseases (neurological disorders with inability to

swallow or dysphagia), craniofacial abnormalities, oncological problems with malnutrition and other clinical conditions (chronic renal failure, cystic fibrosis, metabolic disorders, chronic infections such as HIV, heart disease, short bowel syndrome, and Crohn's disease), repeated aspiration, need for a way to administer the medication and, in few cases, it is indicated for gastric drainage and decompression [6].

Regarding neurological disorders, it is estimated that the incidence of children with Ontogenetic Cerebral dysmetria is 7 per 1,000 live births. Among these, 99% have dysphagia and need gastrostomy [7]. The surgical procedure can be performed by laparotomy, whether endoscopic or radiological through laparoscopy [5]. Therefore, the Percutaneous Endoscopic Gastrostomy (PEG) technique developed by Gauderer in 1979 has been recognized as a valuable tool due to shorter hospital stays resulting in low cost when compared with the traditional technique [8].

Although the insertion of PEG is a safe procedure, complications in children have been reported with frequencies varying from 1% to 17% and related to eventual need for surgical intervention. These include severe infection, peritonitis, peritoneal abscess, bleeding, perforation, rupture of viscera or solid organ, tract disorders/detachment of the stomach wall from the skin, aspiration pneumonia and gastrocutaneous chronic fistula. Complications

(50%) include secondary infections with formation of granulomas, leakage, clogging or displacement of the tube, disease or worsening of gastroesophageal reflux [6].

Thus, the caregivers of children with gastrostomy require interdisciplinary health team support to become trained and confident at handling the device. In this context, nurses play a key role in the care of children. They must be prepared for interacting with the family unit and must have technical knowledge to solve the problems that arise. The actions of these professionals are essential to ensure efficient, effective and quality care to this population.

Given the above, the purpose of this study was to analyze national and international scientific production on nursing care for children with gastrostomy.

## Method

This study is an integrative review, a research method that aims to gather and synthesize results on a specific theme from a systematic and ordered manner. It represents a tool for deepening the knowledge on the subject investigated, allowing to summarize the search and to obtain conclusions about a topic of interest [9].

The construction of this review followed the steps: identification of the theme and selection of the hypothesis or research question for the integrative review; establishment of inclusion and exclusion criteria of studies/sampling or literature search; definition of the information to be extracted from selected studies/categorization of studies; evaluation of studies included in the integrative review; interpretation of results; presentation of the review/synthesis of the knowledge gathered [9].

To prepare the guiding question, the PICO (English acronym) strategy was used as basis: P - population: nurses who treat children with gastrostomy; I - intervention - nursing care; C - comparison - health promotion; O - outcome: promoted health. From the structure of the question, this strategy is able to

identify the keywords or descriptors that will form the basis of the search for evidence in the databases [10]. So, the following question guided the study: which is the available evidence in the literature that guide the nurses' clinical practice and decision-making in the care of children with gastrostomy?

An Integrative review was conducted in the databases: Latin American and Caribbean Health Sciences (LILACS) *Scientific Electronic Library Online* (SCIELO) *Medical Literature Analysis and Retrieval System Online* (MEDLINE) and *Cumulative Index to Nursing and Allied Health Literature* (CINAHL), without temporal delimitation of publications. The following Health Sciences Descriptors (DeCS) and *Medical Subject Headings* (MeSH) were used: *gastrostomia/gastrostomy/cuidado da criança/ children care/enfermagem/nursing*. To systematize the searches, the descriptors were pair crossed using the Boolean operator *AND* this way: *gastrostomy and children care;gastrostomy and nursing*. We chose pair crossing because when used together they showed no results.

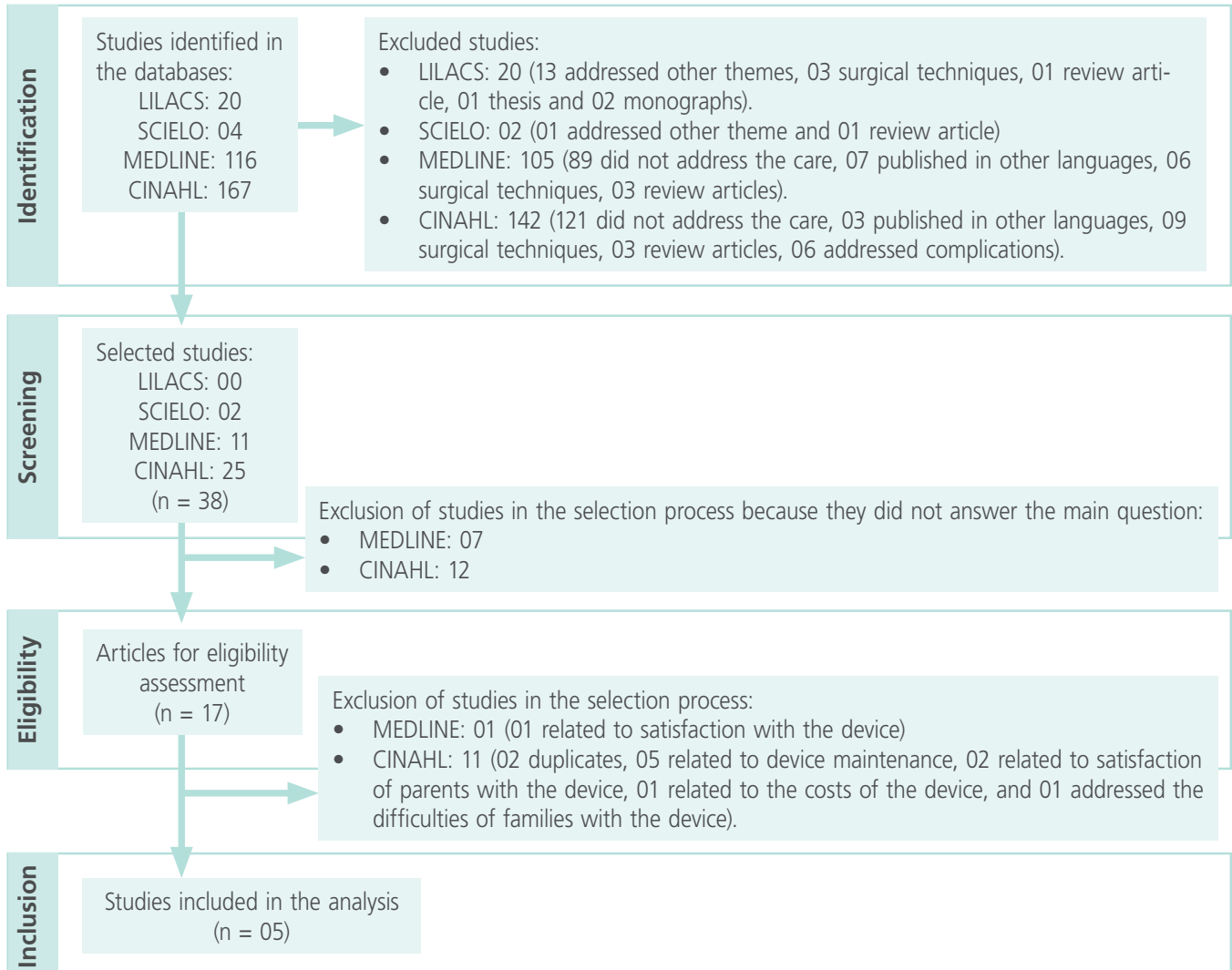
The inclusion criteria adopted were: studies on the care of children with gastrostomy; free access; available in full-length; published in Portuguese, English and Spanish. Exclusion criteria were: monographs, dissertations, theses and review studies.

The selection of articles was carried out in February and March 2017 by two researchers in separate searches. Twenty references were found in LILACS, four in SciELO, 116 in MEDLINE and 167 in CINAHL. The studies found in the LILACS and SciELO did not meet the inclusion criteria. Three articles were selected from MEDLINE and 02 from CINAHL.

This study used the PRISMA instrument [11] (*Preferred Reporting Items for Systematic Review and Meta-Analyses*) to explain the search and selection of studies, according to the following flow chart (Figure 1).

Then, a critical and detailed analysis was carried out, comparing it to the theoretical knowledge as well as identifying conclusions and implications of

**Figure 1:** Flow chart of the selection process of studies – Fortaleza, Brazil, 2017.



nursing care for children with gastrostomy. Based on the five selected articles, two matrices were generated for presentation of results. The first has the characterization of the studies and the second matrix reports the description of the nursing care for children with gastrostomy and their main outcomes.

## Results

The five studies in the sample were encoded S1, S2, S3, S4 and S5. On characterization, the articles had diversity when it comes to countries where they were conducted, participants and methodological design. These characteristics are shown in **Table 1**.

**Table 1** shows that the studies were conducted in different countries such as United States of America (S2, S3, S4), Australia (S1) and Canada (S5), and they were developed in hospitals, including teaching hospitals. As for authorship of articles, three (S1, S2, S3) were written only by physicians, one was written by nurses (S4) and the other article was written by nurses and physicians (S5).

Regarding the methodological design, the researchers used cross-sectional, cohort, intervention and experience report approaches, with evidence level three (S1, S2, S4), four (S5) and five (S3), considered from moderate to weak evidence. As for the population studied, it was observed that the studies were

**Table 1.** Characterization of the scientific production on nursing care for children with gastrostomy. Fortaleza, CE, Brazil, 2017.

Code	Article name	Country	Method	Place of the study	Participants
S1 [12]	Experience of gastrostomy using a quality care framework: the example of Rett Syndrome	Australia	Cohort study	Princess Margaret Hospital for Children	63 caregivers of children with Reet Syndrome
S2 [13]	Safety and caregiver satisfaction with gastrostomy in patients with ataxia telangectasia	United States of America	Cohort study	Johns Hopkins Hospital	175 patients with Ataxia-Telangectasia
S3 [14]	Balancing biomedical, care, and support needs in the technology dependent child	United States of America	cohort study	Cambridge Hospital	57 children with severe neurological disabilities
S4 [15]	Parents on gastrostomy devices: necessary components to achieve success	United States of America	Clinical trial	Widwestern Children's Hospital	115 nurses who work with gastrostomized children
S5 [16]	Percutaneous endoscopic gastrostomy (PEG): the role perspective of nurses	Canada	Cross-sectional exploratory study	Drive NW Hospital	18 nurses working in the pre-operative PEG

conducted with patients and nurses and the sample size ranged from 18 (S5) to 175 (S2) participants. Table 2 presents a summary of the main findings raised in this review.

Based on **Table 2**, we observed that the gastrostomy brought about satisfaction to caregivers, even after postoperative complications they faced [12, 13]. Positive results with the use of the device and reduction of complications related to feeding difficulties, weight gain, decreased vomiting; abdominal distension and fatigue of the patient throughout the day were cited [13].

**Table 2** also shows that caregivers from the studies felt fear and insecurity during the decision-making process on the realization of gastrostomy. This shows that the information for the care of these patients was a common concern among them [14]. It was also possible to identify the impact of interventions carried out by researchers in studies with gastrostomy patients, associating the satisfaction of caregivers with the information received in preoperative [15, 16].

Despite the studies point out the importance of nurses in decision-making, management and conti-

**Table 2.** Summary of the main results of the review. Fortaleza, CE, Brazil, 2017.

Study	Main Results
S1 [12]	The caregivers were satisfied with the device; they identified advantages such as reduction in feeding difficulties, weight gain, improved well-being, ease of daily care, decreased vomiting, decreased abdominal distension and fatigue of the patient throughout the day. In general, caregivers recommend the device to other caregivers in similar circumstances.
S2 [13]	Despite the complications presented with gastrostomy after surgery, caregivers reported significant improvements in meeting the food and energy levels necessary to participate in daily activities after the surgery.
S3 [14]	The lack of information from health professionals generated fear and insecurity of parents at deciding whether perform or not the gastrostomy. It was pointed out that parents felt unsupported during the decision-making process and other felt pressured by family members and healthcare professionals to perform the surgery in their children.
S4 [15]	After implementation of education developed in this research, nurses were able to identify the various types of gastrostomy devices and to identify the necessary resources to provide timely education needs for families.
S5 [16]	The participant nurses felt they had a role in the decision-making process, recognizing their multidimensional performance, but they felt useless in the decision-making of gastrostomy.



ning education on the care (S4, S5), they demonstrated anxieties due to the inadequacy of the time available for decision-making of a gastrostomy.

## Discussion

The decision to consent to gastrostomy is often difficult for families, because they feel they failed in orally feeding their children. In a children's hospital in Australia, a study investigated weight changes and satisfaction of the caregivers of children with gastrostomy [12]. The results showed that 55% of the families considered adequate the amount of food offered to the child, while 15% considered that the amount was lower than expected and 30% more than expected. Also, 65% of the families reported that the child had coughing during feeding and 31%, choking or gagging [12]. Despite controversies regarding instructions given by the health team and the difficulty of understanding the language used by professionals to prepare for home care [17], nursing care was recognized in this study.

About the satisfaction of care after gastrostomy, the study pointed out the benefits in relation to food and drug administration via gastrostomy, reducing the worry and stress in relation to meals procedures and the health of their children.

Study in a pediatric teaching hospital in the United States evaluated the clinical characteristics of patients who have benefited from the gastrostomy device to improve the understanding and recommendation of health professionals about this surgical procedure [13]. Caregivers answered a form on patient satisfaction before and after gastrostomy and this showed that the safe placement of the gastrostomy and caregiver satisfaction may happen when the device is placed before the serious complications associated with nutritional impairment or dysphagia with concurrent aspiration.

In pediatrics, neurological diseases are generally present when the subject is gastrostomy. Cerebral palsy happens in parallel to disabilities such as men-

tal retardation, seizures and learning difficulties [1]. A study developed on a multidisciplinary feeding clinic in the United States reported the experience of caregiver mothers of chronic children with gastrostomy [14]. This study did not bring the results of a concrete intervention. However, the authors argument the decision to carry out a gastrostomy must be seen as important, and may occur with the provision of enough time and information to help parents decide. Once the decision is made and the procedure is performed, health professionals must offer practical and emotional support to parents and continue to supporting them in their concerns.

A significant learning requires the use of resources offered by educational technologies, favoring the content to be learned, enabling the use of exciting teaching strategies, such as playful techniques that allow different meanings of the care process [18].

In this sense, an intervention was performed with nurses at a hospital in the United States and aimed to standardize education on gastrostomy devices and improve the skills of nurses to prepare families to make decisions on this surgery, reducing doubts at the home environment [15]. The intervention was carried out with all nurses of the units that provide care for 2-year old gastrostomized patients and younger. It was divided into sessions to discuss the responsibility of nurses during the hospital stay and at the recovery room to educate parents in the care of the device. This education should include a demonstration of a replacement of the gastrostomy device on a doll and a replacement performed by parents when this come out [15]. The assimilation of knowledge is more effective when this is demonstrated and discussed than when it is simply exposed through class presentations [19].

Thus the results of the study showed that the intervention was satisfactory, making nurses aware of their responsibilities as well as of the identification of different types of devices and the solution of respective complications. As for parents' educa-

tion, the study showed significant improvement, as it brought confidence to parents to replace the device at home, instead of bringing the child to the hospital.

On the other hand, a study conducted in Canada [16] aimed to explore the observations and perspectives of nurses in decision-making of the insertion of gastrostomy, and the impact that the involvement in this decision-making process has on them. The data collection method used was an interview with open questions related to the objectives of the study. The participants expressed a sense of responsibility especially in the beginning of long-term feeding and guidance to parents, but they felt underutilized when it comes to participation in the decision-making on the insertion of the device.

As stated, it was verified that, despite nurses taking care of themselves, they are not considered the protagonist, in the case of gastrostomized patients, these studies have showing that they feel responsible for the care given to this population. It is noteworthy that studies from 2007 to 2010 and from 2012 to 2013 were not found, what indicates a gap in research on the subject and the complexity of developing these studies. Another limitation of the study was the lack of identification of articles through other sources such as a manual search of reference lists; the fact that the studies have been published in journals classified as B1 and A1 shows the relevance of the theme At Evaluation of Coordination of Improvement of Higher Education Personnel (CAPES), Brazil.

## Conclusion

The study led to the conclusion that the care provided by the nurse for children with gastrostomy and their families represent a complex and specialized activity, but contribute to improving knowledge and facilitating decision-making during the handling of the device. The use of educational technologies are to be highlighted as a strategy for promoting care

during hospitalization and preparing parents to take care of the gastrostomy after hospital discharge.

Before starting giving the specific guidelines for the families of children with gastrostomy, nurses should know the particularities of each family, as well as the feelings, desires and anxieties and context in which they are inserted so that short and medium-term strategies may be drawn.

A gap in the literature regarding nursing care to this population was detected. Most of the published articles are limited to surgical techniques and complications that can occur in patients with gastrostomy, including serious complications that can lead to death, but the specific care to prevent and improve these complications are not clearly presented. It is hoped that this theme arouses interest of nurses, favoring conducting research specifically on nursing care directed to patients with gastrostomy.

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